

FIG. 1

| | d_1 | d_2 | d_3 | | $d_{\beta-1}$ | d_β | |
|------------|----------------------------------|----------------|----------------|-------|---------------------|-------------------|----|
| p_1 | w_{11} | w_{12} | w_{13} | | $w_{1\beta-1}$ | $w_{1\beta}$ | 21 |
| p_2 | w_{21} | w_{22} | w_{23} | | $w_{2\beta-1}$ | $w_{2\beta}$ | |
| \vdots | \vdots \vdots \vdots | | | | | | |
| p_α | $w_{\alpha 1}$ | $w_{\alpha 2}$ | $w_{\alpha 3}$ | | $w_{\alpha\beta-1}$ | $w_{\alpha\beta}$ | 21 |

FIG. 2

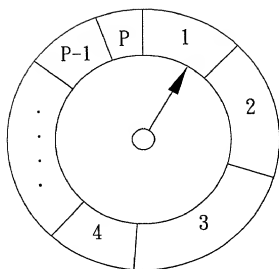


FIG. 3

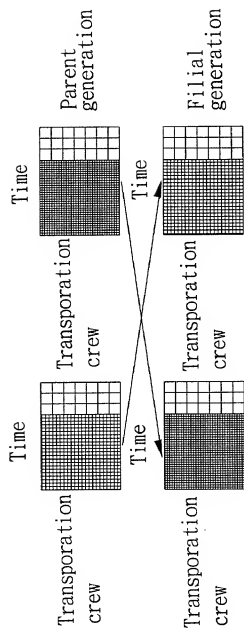


FIG. 4

Transporation
crew

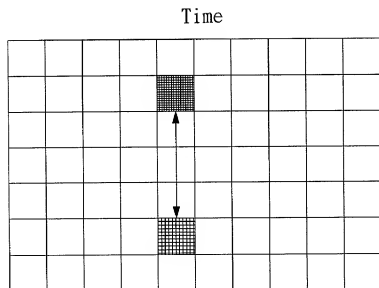


FIG. 5

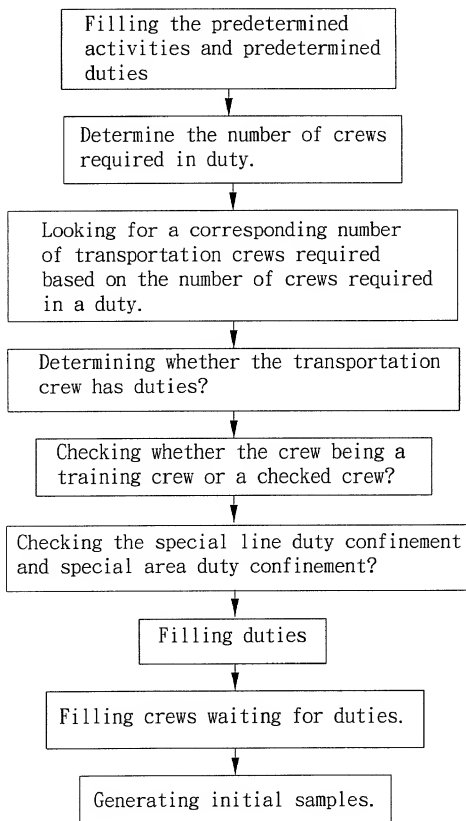


FIG. 6

PENALTY

Absolute confinement

One holiday ☒ per week 24H10H FDP MRT 32 hours in 7 days

Optimum confinement

| | | |
|---------------------------------------|--------------------------------------------------------|---------------------------------------|
| One holiday per week(max) | One holiday per week(min) | PNC Err |
| <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="16500"/> |
| <input type="checkbox"/> back to base | <input checked="" type="checkbox"/> Continuous Layover | <input type="checkbox"/> 6leg_no_pnc1 |
| <input type="text" value="5"/> | <input type="text" value="600"/> | <input type="text"/> |
| | <input type="checkbox"/> 100H | |
| | <input type="text"/> | |

☒ Average

FT PNC layover

| | | | |
|---------------------------------|--------------------------------|---------------------------------|--------------------------------|
| PNC(1-5) | L/O(1-5) | PNC(WK) | L/O(WK) |
| <input type="text" value="20"/> | <input type="text" value="5"/> | <input type="text" value="20"/> | <input type="text" value="5"/> |

GA Parameter

| | |
|----------------------------------|------------------------------------|
| Time(min) | Generation |
| <input type="text" value="10"/> | <input type="text" value="20000"/> |
| SampleSpace | MutationRate |
| <input type="text" value="360"/> | <input type="text" value="0.3"/> |
| Population | MutationTimes |
| <input type="text" value="200"/> | <input type="text" value="1"/> |

Crossover Rate

☐ crossover1p

☐ crossover1

☐ crossover2

☐ Mutation_999

☐ cantpnc-log999

☒ Elitism

☒ Record the interval

FIG. 7

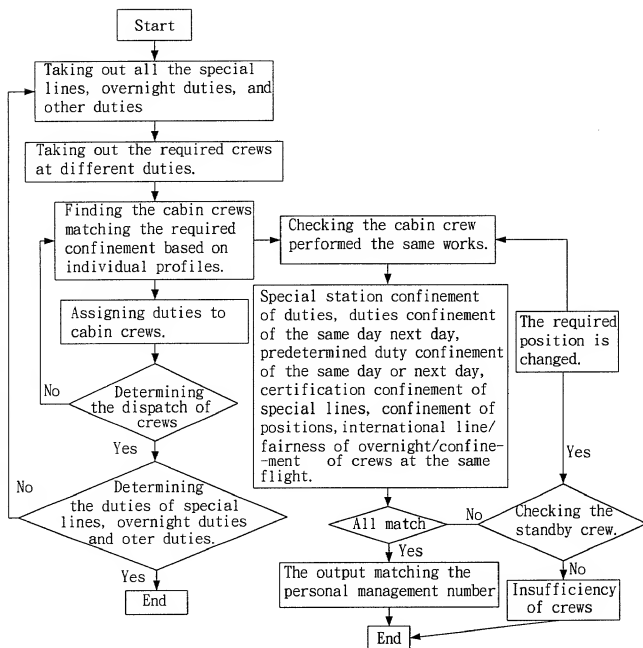


FIG. 8

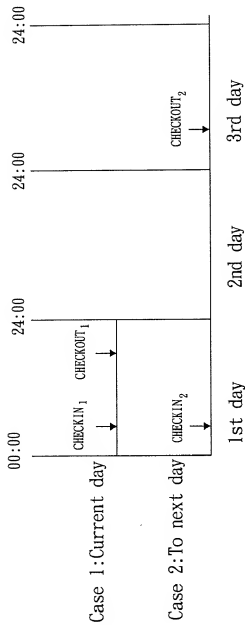


FIG. 9

| TIME PERIOD | 2001/ 3/1 -15 | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------|--------|----------------------|--------|--------------|---|---------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----|------|----|-----|-----|----|------|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| FT average 2105 minutes at this stage PT average 12177 minutes in the past Perdiem average 3551 minutes at this stage Enter kernel , please wait... Continue Process Press Resume to continue... | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Test mode <input type="checkbox"/> Log mode | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Operation number of times</th> <th>4303</th> <th>Total times value</th> <th>501360</th> </tr> </thead> <tbody> <tr> <td>MRT</td> <td>0</td> <td>TD24H</td> <td>0</td> </tr> <tr> <td>PNC</td> <td>124</td> <td>SBc</td> <td>82</td> </tr> <tr> <td>Subc</td> <td>78</td> <td>D/O</td> <td>303</td> </tr> <tr> <td>AC</td> <td>8040</td> <td></td> <td></td> </tr> </tbody> </table> | | Operation number of times | 4303 | Total times value | 501360 | MRT | 0 | TD24H | 0 | PNC | 124 | SBc | 82 | Subc | 78 | D/O | 303 | AC | 8040 | | | <div style="border: 1px solid black; padding: 5px;"> <p style="margin: 0;">System kernel parameters</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Confined penalty value setting</p> <p><input type="checkbox"/> Set limit day <input type="checkbox"/> Average <input type="checkbox"/> SB</p> <p>Limit number of days FTP Avg 3000 5 100 100 100 10</p> <p>Optimum number of days PNC Avg 100 1 50 50 500 500</p> <p>Within number of days 100 1 100 100 100 100</p> <p>Within number of days 60 60000 100 100 100 100</p> <p>Within number of days 60 50 50 50 50 50</p> </div> <div style="width: 45%;"> <p>Operation parameter</p> <p>Generation 50000</p> <p>SampleSpace 180</p> <p>Population 100</p> <p>MutationRate 0.8</p> <p>MutationTimes 1</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <input checked="" type="checkbox"/> OK <input type="checkbox"/> Cancel <input type="button" value="Default"/> </div> </div> | |
| Operation number of times | 4303 | Total times value | 501360 | | | | | | | | | | | | | | | | | | | | |
| MRT | 0 | TD24H | 0 | | | | | | | | | | | | | | | | | | | | |
| PNC | 124 | SBc | 82 | | | | | | | | | | | | | | | | | | | | |
| Subc | 78 | D/O | 303 | | | | | | | | | | | | | | | | | | | | |
| AC | 8040 | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>User setup</th> <th>Run</th> <th>Setup</th> <th>Exit</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;">System setup</td> <td style="text-align: center;"><input type="button" value="Resume"/></td> <td></td> </tr> </tbody> </table> | | User setup | Run | Setup | Exit | System setup | | <input type="button" value="Resume"/> | | <input type="checkbox"/> Generate log file <input type="button" value="10"/> <input type="button" value="Generate Multi-Schedule"/> | | | | | | | | | | | | | |
| User setup | Run | Setup | Exit | | | | | | | | | | | | | | | | | | | | |
| System setup | | <input type="button" value="Resume"/> | | | | | | | | | | | | | | | | | | | | | |

FIG. 10